

May 17, 2021

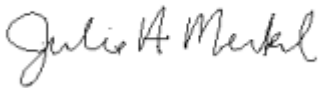
Mr. Daniel Dahl  
Wilderness Funeral Homes  
Hi-Line Crematory  
P.O. Box 429  
Malta, MT 59538

Sent via email: [daniel@wildernessfuneralhomes.com](mailto:daniel@wildernessfuneralhomes.com)

Dear Mr. Dahl;

Montana Air Quality Permit #3034-03 is deemed final as of May 15, 2021, by the Department of Environmental Quality (Department). This permit is for a human crematory. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,



Julie A. Merkel  
Permitting Services Section Supervisor  
Air Quality Bureau  
(406) 444-3626



Julie Ackerlund  
Permitter  
Air Quality Bureau  
(406) 444-4267

Montana Department of Environmental Quality  
Air, Energy & Mining Division

Montana Air Quality Permit #3034-03

Wilderness Funeral Homes  
Hi-Line Crematory  
P.O. Box 429  
Malta, MT 59538

May 15, 2021



## MONTANA AIR QUALITY PERMIT

Issued To: Wilderness Funeral Homes  
Hi-Line Crematory  
202 S 2<sup>nd</sup> St. E  
Malta, MT 59538

MAQP: #3034-03  
Application Complete: March 22, 2021  
Preliminary Determination Issued: March 26,  
2021  
Department's Decision Issued: April 29, 2021  
Permit Final: May 15, 2021

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Wilderness Funeral Homes for the Hi-Line Crematory, pursuant to Sections 75-2-204, 211, and 215 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

### Section I: Permitted Facilities

#### A. Facility Location

The Hi-Line Crematory is located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. The legal description is Section 18, Township 30 North, Range 30 East, Phillips County. A complete listing of the permitted equipment can be found in Section I of the Permit Analysis.

#### B. Current Permit Action

On February 19, 2021, the Montana Department of Environmental Quality – Air Quality Bureau (Department) received an application for a permit modification from Wilderness Funeral Homes to inform the Department that the existing Crawford crematory is to be replaced by a Matthews Power-Pak II Plus Crematory. Additional correspondence was received by the Department on March 11, 2021 that included an intent to transfer ownership from Kirkwood Funeral Home dba Hi-Line Crematory to Wilderness Funeral Homes owning the Hi-Line Crematory signed by both the selling and purchasing parties in accordance with ARM 17.8.765(2). The current permit action changes the company name on MAQP #3034-03, replaces the crematory unit, and updates the permit to reflect current language and rule references used by the Department.

### SECTION II: Conditions and Limitations

#### A. Emission Limitations

1. Wilderness Funeral Homes shall not incinerate/cremate any material other than human remains and any corresponding container unless approved in writing by the Department (ARM 17.8.749).
2. The cremation unit shall be equipped with a secondary combustion chamber controlled with an afterburner. Wilderness Funeral Homes shall preheat the secondary chamber to a minimum of 1,700 degrees Fahrenheit, prior to igniting a charge in the primary chamber burner. Wilderness Funeral Homes

shall maintain the secondary chamber temperature such that no single reading is less than 1,600 degrees Fahrenheit in the secondary chamber during cremation. (ARM 17.8.752).

3. The primary and secondary chamber burners shall be fired on pipeline quality natural gas (ARM 17.8.749).
4. Wilderness Funeral Homes shall develop procedures for the cremation unit, print those procedures in a cremation unit operation procedures manual, and require all personnel who operate the unit to be familiar with and to follow the operating procedures. The operation procedures manual shall be readily available to all personnel who operate the unit. Wilderness Funeral Homes shall keep training records and supply training records and a copy of the operation procedures manual to the Department upon request (ARM 17.8.752).
5. Wilderness Funeral Homes shall not cause or authorize to be discharged into the outdoor atmosphere from any cremation unit an opacity of 10 percent or greater averaged over six consecutive minutes (ARM 17.8.316).
6. Wilderness Funeral Homes shall not cause or authorize to be discharged into the outdoor atmosphere from any cremation unit any particulate emissions in excess of 0.10 grains per dry standard cubic foot (gr/dscf) corrected to 12 percent carbon dioxide (CO<sub>2</sub>)(ARM 17.8.316).
7. Wilderness Funeral Homes shall limit the operation of the cremation unit to not exceed 175 pounds of remains per hour (lb/hr) (ARM 17.8.749).

B. Testing Requirements

1. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. The Department may require testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. Wilderness Funeral Homes shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. Wilderness Funeral Homes shall notify the Department of any construction or improvement projects conducted, pursuant to ARM 17.8.745, that would include *the addition of a new emitting units*, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation.

The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

3. All records compiled in accordance with this permit must be maintained by Wilderness Funeral Homes as a permanent business record for at least 5 years following the date of the measurement, must be available at the facility for inspection by the Department, and must be submitted to the Department upon request.

These records may be stored at a location other than the facility upon approval by the Department (ARM 17.8.749).

#### D. Monitoring Requirements

1. Wilderness Funeral Homes shall install, calibrate, maintain and operate continuous monitoring and recording equipment on the 2012 Matthews Power-Pak II Plus cremation unit to measure the secondary chamber exit temperature (ARM 17.8.749).
2. Wilderness Funeral Homes shall also record the daily quantity (mass) of material incinerated/cremated and the daily hours of operation of the 2012 Matthews Power-Pak II Plus cremation unit (date, start time, end time, and operator) (ARM 17.8.749).

#### E. Notification

1. Wilderness Funeral Homes shall provide the Department with written notification of the commencement of construction of the incinerator within 30 days after commencement of construction (ARM 17.8.749).
2. Wilderness Funeral Homes shall provide the Department with written notification of the date of the first cremation in the unit within 15 days after the first cremation (ARM 17.8.749).

### Section III: General Conditions

- A. Inspection – Wilderness Funeral Homes shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment such as Continuous Emission Monitoring Systems (CEMS) or Continuous Emission Rate

Monitoring Systems (CERMS), or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Wilderness Funeral Homes fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Wilderness Funeral Homes of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Wilderness Funeral Homes may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Permit Analysis  
Wilderness Funeral Homes  
Montana Air Quality Permit #3034-03

I. Introduction

Wilderness Funeral Homes owns and operates a human crematorium/incinerator. The facility is located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. The legal description is Section 18, Township 30 North, Range 30 East, Phillips County.

A. Permitted Equipment

Wilderness Funeral Homes operates a 2012 Matthews Power-Pak II Plus incinerator/crematorium. This crematory is designed to heat the primary chamber (retort) to 400 degrees Fahrenheit and the secondary chamber (afterburner) to 1700 degrees Fahrenheit prior to placing the human remains in the retort for cremation. Complete combustion is ensured by maintaining the secondary chamber temperature at or above 1600 degrees Fahrenheit throughout the cremation process.

B. Source Description

The incinerator/crematorium is fired on natural gas and is capable of consuming up to 175 pounds per hour (lb/hr) of human remains and associated containers.

C. Permit History

On December 7, 1998, Adams Funeral Home and Hi-Line Crematory submitted a complete application for a Montana Air Quality Permit (MAQP) to install and operate a 1989 Crawford model c-1000 H-S incinerator/crematorium at their existing funeral home located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. **MAQP #3034-00** was issued to Hi-Line Crematory on February 6, 1999.

In 1999, the U.S. Environmental Protection Agency (EPA) informed the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) that any condition in an air quality preconstruction permit would be considered a federally enforceable condition. However, there are certain state rules that were never intended to be federally enforceable. The Department notified all facilities holding MAQPs that they could request deletion of those conditions based on the Administrative Rules of Montana (ARM) 17.8.756 and 17.8.315. Removing either of these conditions does not relieve the facility from complying with the rule upon which the permit condition was based; removal only ensures that enforcement of that condition remains solely with the Department. The Department removed the condition, based on ARM 17.8.315, from Adams Funeral Home and Hi-Line Crematory's MAQP and updated the rule references. **MAQP #3034-01** replaced MAQP #3034-00.

On January 13, 2010, the Department received a letter from Mr. Greg Kirkwood informing the Department of a change in ownership and a request to change the name on MAQP #3034-01 from Adams Funeral Home and Hi-Line Crematory to

Kirkwood Funeral Home and Hi-Line Crematory. The letter included a signed notice from responsible officials from both the selling and purchasing parties in accordance with ARM 17.8.765(2). The sale of the business occurred on August 21, 2008. The permit action changed the company name, corrected the mailing address, and updated the permit to reflect current language and rule references used by the Department. **MAQP #3034-02** replaced #3034-01.

D. Current Permit Action

On February 19, 2021, the Department received an air quality permit modification request from Mr. Daniel Dahl informing the Department that the Hi-Line Crematory is planning to replace its existing 1989 Crawford model c-1000 H-S incinerator/crematorium with a 2012 Matthews Power-Pak II Plus incinerator/crematorium. Additional information was received on March 11, 2021 to complete the permit application.

The received information also includes a notice of ownership change from Kirkwood Funeral Home to Wilderness Funeral Homes signed by both the selling and purchasing responsible official. The Hi-Line Crematory changed owners on December 10, 2019. This permit action replaces the crematory with a 2012 Matthews Power-Pak II Plus crematory, changes the company name, corrects the mailing address, and updates the permit to reflect current language and rule references used by the Department. **MAQP #3034-03** replaces #3034-02.

E. Response to Public Comments (None Received)

F. Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department of Environmental Quality (Department). Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1, General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct



tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

Wilderness Funeral Homes shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2, Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM<sub>10</sub>
11. ARM 17.8.230 Fluoride in Forage

Wilderness Funeral Homes must comply with the applicable ambient air quality standards.

As part of the risk assessment required for the permit, the Department completed a screening level ambient air impact analysis using an EPA-approved dispersion model (SCREEN3). The analysis demonstrates that the crematorium incinerator would comply with all applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3, Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Wilderness Funeral Homes shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. . This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.
5. ARM 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used. Further, no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator, emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes.

This section does not apply to the 2012 Matthews Power-Pak II Plus unit because Wilderness Funeral Homes has applied for and received an air quality permit in accordance with ARM 17.8.770 and MCA 75-2-215.

6. ARM 17.8.322 Sulfur Oxide Emissions – Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this rule.
7. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.
8. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR Part 60.

40 CFR 60 Subpart E – Standards of Performance for Incinerators: The provisions of this subpart are applicable to each incinerator of more than 45 metric tons per day charging rate. The crematory is not an affected facility under this subpart.

40 CFR 60 Subpart Ea and Eb – Standards of Performance for Municipal Waste Combustors: The crematory is permitted for use as a human crematory only. Therefore, the crematory will not incinerate household, commercial/retail, or industrial wastes as described in these subparts and is not an affected facility under these subparts.

40 CFR 60 Subpart Ec – Standards of Performance for Hospital/Medical/Infection Waste Incinerators: This subpart does not apply to the incineration of remains. The crematory is permitted for use as a human crematory only and therefore is not an affected facility under this subpart.

40 CFR 60 Subpart AAAA – Standards of Performance for Small Municipal Waste Combustion Units: The crematory is permitted for use as a human crematory only. Therefore, the crematory will not incinerate household, commercial/retail, or industrial wastes as described in this subpart and is not an affected facility under this subpart.

40 CFR 60 Subpart CCCC – Standards of Performance for Commercial and Industrial Solid Waste Incineration Units: The crematory is permitted for use as a human crematory only. Therefore, the crematory will not combust commercial or industrial waste and is not an affected facility under this subpart.

40 CFR 60 Subpart EEEE – Standards of Performance for Other Solid Waste Incineration Units: This subpart applies to very small municipal waste combustion units or institutional waste incineration units, as defined in this subpart. The crematory is permitted for use as a human crematory only and therefore is not an affected facility under this subpart.

9. ARM 17.8.341 Emission Standards for Hazardous Air Pollutants. This facility is not a NESHAP affected source because it does not meet the definition of any NESHAP subpart defined in 40 CFR Part 61.
10. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This facility is not a NESHAP affected source because it does not meet the definition of any NESHAP subpart defined in 40 CFR Part 63.

40 CFR 63 Subpart EEE – National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors: The provisions of this subpart apply to all hazardous waste combustors. The crematory is permitted for use as a human crematory only. Therefore, it does not meet the definition of a hazardous waste combustor and is not an affected facility under this subpart.

D. ARM 17.8, Subchapter 5, Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Wilderness Funeral Homes submitted the appropriate permit application fee for the current permit action.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

E. ARM 17.8, Subchapter 7, Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits – When Required. This rule requires a facility to obtain an air quality permit or permit modification if the facility proposes to construct, modify, or use an air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year (TPY) of any pollutant. While Wilderness Funeral Homes does not have the PTE more than 25 TPY of any pollutant, an air quality permit must be obtained under the requirements of 75-2-215, MCA. Because Wilderness Funeral Homes obtained an air quality permit, all normally applicable requirements apply to the facility.
3. ARM 17.8.744 Montana Air Quality Permits – General Exclusions. This rule identifies the activities that are not subject to the MAQP program.
4. ARM 17.8.745 Montana Air Quality Permits – Exclusions for De Minimis. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the MAQP program.
5. ARM 17.8.748 New or Modified Emitting Units – Permit Application Requirements. (1) This rule requires that a permit application be submitted

prior to installation, modification, or use of a source. Wilderness Funeral Homes submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Wilderness Funeral Homes submitted an affidavit of publication that three public notices were posted a week apart on February 24, March 3, and March 10, in The Phillips County News, a newspaper of general circulation in the Town of Malta in Phillips County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Wilderness Funeral Homes of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement. preparation of an environmental impact statement.
12. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

13. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
  14. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
  15. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names and signatures of the transferor and the transferee, is sent to the Department.
  16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, MCA.
  17. ARM 17.8.771 Mercury Emission Standards for Mercury-Emitting Generating Units. This rule identifies mercury emission limitation requirements, mercury control strategy requirements, and application requirements for mercury-emitting units.
- F. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including, but not limited to:
1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
  2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications – Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major source because it is not a listed source and does not have the PTE greater than 250 TPY (excluding fugitive emissions) of any pollutant.

G. ARM 17.8, Subchapter 12, Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
  - a. PTE > 10 TPY of any one hazardous air pollutant (HAP), or PTE > 25 TPY of a combination of all HAPs, or lesser quantity as the Department may establish by rule.
  - b. PTE > 100 TPY of any pollutant.
  - c. PTE > 70 TPY of particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) in a serious PM<sub>10</sub> nonattainment area.
3. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #3034-03 for Hi-Line Crematory, the following conclusions were made:
  4.
    - a. The facility's PTE is less than 100 TPY for any pollutant.
    - b. The facility's PTE is less than 10 TPY for any single HAP and less than 25 TPY for all HAPs.
    - c. This source is not located in a serious PM<sub>10</sub> nonattainment area.
    - d. This facility is not subject to any current NSPS.
    - e. This facility is not subject to any current National Emission Standards for Hazardous Air Pollutants (NESHAP) standards.
    - f. This source is not a Title IV affected source, nor a solid waste combustion unit.
    - g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that Hi-Line Crematory is a minor source of emissions as defined under the Title V.

H. MCA 75-2-103, Definitions provides, in part, as follows:

1. "Incinerator" means any single or multiple-chambered combustion device that burns combustible material, alone or with a supplemental fuel or catalytic combustion assistance, primarily for the purpose removal, destruction, disposal, or volume reduction of all or any portion of the input material.

2. “Solid waste” means all putrescible and nonputrescible solid, semisolid, liquid, or gaseous wastes, including, but not limited to...air pollution control facilities...

I. MCA 75-2-215, Solid or hazardous waste incineration - additional permit requirements:

1. MCA 75-2-215 requires air quality permits for all new commercial solid waste incinerators. Wilderness Funeral Homes therefore must obtain an air quality permit.
2. MCA 75-2-215 requires the applicant to provide, to the Department's satisfaction, a characterization and estimate of emissions and ambient concentrations of air pollutants, including hazardous air pollutants, from the incineration of solid waste. The information submitted in the initial permit application fulfilled this requirement.
3. MCA 75-2-215 requires that the Department reach a determination that the projected emissions and ambient concentrations constitute a negligible risk to public health, safety, and welfare. The Department completed a health risk assessment, based on an emissions inventory and ambient air quality modeling, for the permit action. Based on the results of the emission inventory, modeling, and the health risk assessment, the Department determined that Wilderness Funeral Homes' proposal complied with this requirement.
4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed BACT. The Department determined that operating the incinerator (crematorium) according to the manufacturer-recommended operating procedures along with requiring the secondary chamber to operate at or above 1,600 degrees Fahrenheit during cremation constitutes BACT.

III. BACT Analysis

A BACT determination is required for each new or modified source of emissions. Hi-Line Crematory shall install on the new or modified source the maximum air pollution control that is technically practicable and economically feasible, except that BACT shall be utilized.

Wilderness Funeral Homes proposes to install and operate a crematorium equipped with a secondary chamber designed specifically to reduce the amount of pollutants, including HAPs, emitted from the incinerator. Previous research conducted by the Department indicates crematoriums of this size have not been required to install additional air pollution control equipment beyond that provided by the controlled air design of the incinerator, which maintains an appropriate and stable unit temperature and retention of combustion gases within the secondary chamber to maximize pollutant destruction. The Matthews Power-Pak II Plus is designed with an afterburner in the secondary combustion chamber. With the estimated particulate matter emissions being approximately 2 tpy, the incremental cost per ton of additional control would be very high and not in line with control costs of



other similar sources. Furthermore, the health risk assessment shows negligible risks from the small amount of HAP emissions from this incinerator as proposed.

BACT for products of combustion/incineration (carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), volatile organic compounds (VOC), and sulfur dioxide (SO<sub>2</sub>) and HAPs) resulting from crematorium operations is proper crematorium design and operation. Proper design includes relying on good turbulence, high temperature and the residence time within the secondary chamber. Turbulence is achieved with proper introduction of air into the combustion chambers, including the use of an electric blower of 230 kilowatts (kW) in the primary chamber. Temperature is achieved by preheating the primary chamber to a minimum of 400 degrees Fahrenheit and the secondary chamber to minimum of 1700 degrees Fahrenheit prior to placing the human remains and associated container. The secondary chamber is required to maintain at a minimum operating temperature of 1,600 °F. Residence time is achieved by sizing the secondary chamber large enough to support final combustion within the secondary combustion chamber. This design incorporates no heat recovery from the secondary combustion chamber and therefore, the stack volume operates effectively as an extension of the secondary combustion chamber volume. When the volume of the secondary combustion chamber and stack are combined the average residence time is over 1 second.

Furthermore, natural gas or propane combustion inherently results in low emissions of air pollutants due to characteristics of the fuel fired. Potential NO<sub>x</sub>, CO, particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>), particulate matter with an aerodynamic diameter of 2.5 microns or less (PM<sub>2.5</sub>), SO<sub>2</sub>, VOC, and Lead emissions from the combustion of natural gas or propane to operate the crematorium are each less than 3.0 tpy. Because potential emissions of all regulated pollutants resulting from natural gas or propane combustion are low, incorporation of available pollutant-specific control technologies would result in high cost per ton removed values thereby making pollutant-specific add-on controls for NO<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, VOC, and Lead economically infeasible in this case.

Based on these conclusions, the Department determined that proper unit design that includes preheating the primary chamber to 400 degrees Fahrenheit and the secondary chamber to 1,700 degrees Fahrenheit before inserting the human remains and maintaining the secondary chamber at or above 1,600 degrees Fahrenheit, and proper operation and maintenance of the crematorium with no additional control constitutes BACT.

The BACT conclusions prescribed under MAQP #3034-03 provide comparable controls and control cost to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

#### IV. Emission Inventory

##### CRITERIA POLLUTANTS

An emission inventory was completed based on continuous operation for 8,760 hours per year using natural gas for fuel. The potential to emit (PTE) for the criteria pollutants is shown in the tables below.

**Matthews Power-Pak II Plus Crematory Unit PTE (tons per year)**

	NO <sub>x</sub>	CO	PM <sub>10</sub> / PM <sub>2.5</sub>	SO <sub>2</sub>	VOC	Lead
Cremation	1.36	1.13	1.78	0.83	0.11	0.03
Natural Gas	1.31	1.10	0.10	0.01	0.07	0.00
Total	2.67	2.23	1.88	0.84	0.19	0.03

The PTE for cremation emissions is calculated below:

Incinerator Maximum Rate            175 lb/hr of remains  
 Maximum Hourly Operation            24 hr/day  
 Maximum Weekly Operation            7 days/week  
 Maximum Weekly Operation            52 weeks/yr

Emission Factor Source is AP-42, Table 2.3-1 & 2.3-2 (5<sup>th</sup> Edition) – Medical Waste Incinerator

<b>PTE from Cremation</b>			
Pollutant	Emission Factor (lb/ton)	Annual (lb/yr)	Annual (ton/yr)
NO <sub>x</sub>	3.56	2721.3	1.36
CO	2.95	2255.0	1.13
PM <sub>10</sub> & PM <sub>2.5</sub> (including condensable)	4.67	3569.7	1.78
SO <sub>2</sub>	2.17	1658.7	0.83
VOC	0.299	228.6	0.11
Lead	0.0728	55.6	0.03

$$(\text{lb/ton}) * (((\text{lb/hr}) * (\text{hr/day}) * (\text{day/week}) * (\text{week/yr})) / (2000 \text{ lb/ton})) * (\text{tons/lb}) = (\text{tons/yr})$$

The PTE from the fuel gas, natural gas, is calculated below:

Incinerator Maximum Rate            175 lb/hr of remains  
 Maximum combustion Rate            3,000 ft<sup>3</sup>/hr  
 Maximum Hourly Operation            24 hr/day  
 Maximum Weekly Operation            7 days/week  
 Maximum Weekly Operation            52 weeks/yr

Emission Factor Source AP-42, Table 1.4-1 & 1.4-2 (5<sup>th</sup> Edition) - Natural Gas Combustion

PTE from Natural Gas Combustion			
Pollutant	Emission Factor (lb/MMft <sup>3</sup> )	Annual (lb/yr)	Annual (Ton/yr)
NO <sub>x</sub>	100	2620.8	1.31
CO	84	2201.5	1.10
PM <sub>10</sub> & PM <sub>2.5</sub> (including condensable)	7.6	199.2	0.10
SO <sub>2</sub>	0.6	15.7	0.01
VOC	5.5	144.1	0.07
Lead	0.0005	0.0	0.00

(lb/MMft<sup>3</sup>) \*(ft<sup>3</sup>/hr)\*(hr/day)\*(day/week)\*(week/yr)\*(tons/lb) = (tons/yr)

#### HAZARDOUS AIR POLLUTANTS

The Department developed a HAP emission inventory using those emissions contained in FIRE (the EPA emission factor repository) for SCC code 50200505 (Incineration-Pathological). Since the only currently regulated hazardous air pollutants are those pollutants considered in the required health risk assessment, only those HAPs with an associated risk factor were considered in the emission inventory. The PTE of the HAPs are based on annual operation of 8,760 hours.

#### **Toxic Emissions from Crematory Retort (including fuel and case wrappings)**

HAP Category / Pollutant Name	Emission Factor (lb/150 lb body) - or - (lb/MMscf natural gas from AP-42 where not tested/reported in crematory emissions)	CAS #	lb/yr	Fraction of all HAPS
<u>Heavy Metals</u>				
Antimony (less than)	1.51E-05	7440360	1.54E-01	1.85E-04
Arsenic (less than)	1.50E-05	7440382	1.53E-01	1.84E-04
Beryllium	1.37E-06	7440417	1.40E-02	1.68E-05
Cadmium	1.10E-05	7440439	1.12E-01	1.35E-04
Chromium	2.99E-05	7440473	3.06E-01	3.67E-04
Chromium, hx	1.35E-05	18540299	1.38E-01	1.66E-04
Cobalt (less than)	8.75E-07	7440484	8.94E-03	1.07E-05
Lead	6.62E-05	7439921	6.77E-01	8.13E-04
Mercury	3.40E-03	7439976	3.47E+01	4.17E-02
Nickel	3.82E-05	7440020	3.90E-01	4.69E-04
Selenium	4.36E-05	7782492	4.46E-01	5.35E-04

HAP Category / Pollutant Name	Emission Factor(lb/150 lb body) - or - (lb/MMscf natural gas from AP-42 where not tested/reported in crematory emissions)	CAS #	lb/yr	Fraction of all HAPS
Zinc	3.53E-04	7440666	3.61E+00	4.33E-03
<u>Polycyclic Organic Matter (POM)</u>				
2-methylnaphthalene	2.40E-05	91576	6.31E-04	7.58E-07
3-methylchloranthrene (less than)	9.00E-07	56495	2.37E-05	2.84E-08
7,12 Dimethylbenz(a)anthracene	1.60E-05		4.20E-04	5.05E-07
Anthracene (less than)	1.20E-06	120127	3.15E-05	3.79E-08
Benzene	2.10E-03	71432	5.52E-02	6.63E-05
Dichlorobenzene	1.20E-03	25321226	3.15E-02	3.79E-05
Hexane	1.80E+00	110543	4.73E+01	5.68E-02
Napthalene	6.10E-04	91203	1.60E-02	1.93E-05
Phenanathrene	1.70E-05	85018	4.47E-04	5.37E-07
Toluene	3.40E-03	108883	8.94E-02	1.07E-04
Acenaphthene	1.11E-07	83329	1.13E-03	1.36E-06
Acenaphthylene	1.22E-07	208968	1.25E-03	1.50E-06
Benzo(a)anthracene (less than)	4.88E-09	56553	4.99E-05	5.99E-08
Benzo(a)pyrene (less than)	1.46E-08	50328	1.49E-04	1.79E-07
Benzo(b)fluoranthene (less than)	7.95E-09	205992	8.12E-05	9.76E-08
Benzo(g,h,i)perylene (less than)	1.46E-08	191242	1.49E-04	1.79E-07
Benzo(k)fluoranthene (less than)	7.10E-09	207089	7.26E-05	8.72E-08
Chrysene (less than)	2.70E-08	218019	2.76E-04	3.31E-07
Dibenzo(a,h)anthracene (less than)	6.35E-09	53703	6.49E-05	7.79E-08
Fluorene	4.17E-07	86737	4.26E-03	5.12E-06
Fluoranthene	2.05E-07	206440	2.10E-03	2.52E-06
Indeno(1,2,3-cd)pyrene (less than)	7.70E-09	193395	7.87E-05	9.45E-08
Phenanthrene	2.29E-06	85018	2.34E-02	2.81E-05
Pyrene	1.62E-07	129000	1.66E-03	1.99E-06
<u>Dibenzofurans</u>				
1,2,3,4,6,7,8-Heptachlorodebenzofuran (less than)	2.29E-09	67562394	2.34E-05	2.80E-08
1,2,3,4,7,8,9-Heptachlofodibenzofuran (less than)	1.39E-10	55673897	1.42E-06	1.71E-09
1,2,3,4,7,8-Hexachlorodibenzofuran	9.53E-10	70648269	9.74E-06	1.17E-08
1,2,3,6,7,8-Hexachlorodibenzofuran	8.52E-10	57117449	8.71E-06	1.05E-08
1,2,3,7,8,9-Hexachlorodibenzofuran	1.67E-09	72918219	1.71E-05	2.05E-08
2,3,4,6,7,8-Hexachlorodibenzofuran	3.44E-10	60851345	3.52E-06	4.22E-09
1,2,3,7,8-Pentachlorodibenzofuran (less than)	1.47E-10	57117416	1.50E-06	1.80E-09
2,3,4,7,8-Pentachlorodibenzofuran (less than)	4.43E-10	57117314	4.52E-06	5.43E-09
2,3,7,8-Tetrachlorodibenzofuran	5.19E-10	51207319	5.30E-06	6.37E-09

HAP Category / Pollutant Name	Emission Factor(lb/150 lb body) - or - (lb/MMscf natural gas from AP-42 where not tested/reported in crematory emissions)	CAS #	lb/yr	Fraction of all HAPS
<u>Listed Non-POM Organic HAPs</u>				
Acetaldehyde	1.30E-04	75070	1.33E+00	1.60E-03
Formaldehyde	3.40E-05	50000	3.47E-01	4.17E-04
<u>Listed Acids</u>				
Hydrogen chloride	7.20E-02	7647010	7.36E+02	8.84E-01
Hydrogen fluoride	6.60E-04	7664393	6.75E+00	8.10E-03
<u>Dioxins</u>				
2,3,7,8-tetrachlorodibenzo-p-dioxin	7.94E-11	1746016	8.11E-07	9.75E-10
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	3.79E-09	35822469	3.87E-05	4.65E-08
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	2.75E-10	39227286	2.81E-06	3.38E-09
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	3.97E-10	57653857	4.06E-06	4.87E-09
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	4.92E-10	19408743	5.03E-06	6.04E-09
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	2.33E-10	40321764	2.38E-06	2.86E-09
<b>SUM:</b>			<b>832.55</b>	<b>1.00</b>

Note:

\* Mercury, Formaldehyde, and Acetaldehyde emissions factors are from CARB's Test Report No. C-90-004, October, 1992

\*\* All other pollutants determined from Webfire, using SCC 31502101 for Crematoriums. Factors derived from Emissions Testing of a Crematorium, October 29, 1992

\*\*\* Pursuant to ARM 17.8.770(1)(a) and (c), only pollutants regulated as a Hazardous Air Pollutant, and which have a chronic inhalation health risk, are required

\*\*\*\* In cases where an emissions factor is listed as 'less than', a multiplier of 0.5 was used for the emissions factor

## V. Existing Air Quality

Hi-Line Crematory is located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. The town of Malta and the surrounding area is classified as attainment with ambient air quality standards. MAQP #3034-03 contains operating and monitoring requirements that would ensure that the proper operation of the facility would not result in air emissions that violate any ambient air quality standards.

## VI. Air Quality Impacts

The Department conducted air dispersion modeling using SCREEN3, an EPA-approved screening model. Modeling inputs were obtained from the application, emission inventory, and a HAP emission rate of 0.012 grams per second (g/s), which is the sum of all toxic

pollutants and/or HAP emissions from the proposed crematorium. The maximum 1-hour modeled impact concentration was then converted to an annual average using the multiplying factor of 0.08 from EPA's *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources*, Revised (EPA-454/R-92-019, Page 4-16). The maximum 1-hour concentration determined by SCREEN3 of 3.085 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) converts to an annual maximum concentration of 0.2468  $\mu\text{g}/\text{m}^3$ .

The individual toxic and/or HAP impacts were calculated by multiplying the maximum modeled annual concentration in  $\mu\text{g}/\text{m}^3$ , by the percentage of each individual pollutant identified within the emission inventory. The emission factors employed in development of the emission inventory were derived from stack test data; as such the data includes pollutant contributions of fuel utilized in firing the crematorium.

As shown by the Health Risk Assessment located in Section VII of this permit analysis, the Department determined that there is negligible human health risk associated with the proposed project. With consideration of the modeling accomplished for the Health Risk Assessment, and the small potential to emit of criteria pollutants, the Department determined that the impacts from this permitting action will be minor, and that the proposed action will not cause or contribute to a violation of any ambient air quality standard.

Summary of Screen Model Inputs for Hi-Line Crematory Matthews Power-Pak II Plus  
SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	0.120000E-01
STACK HEIGHT (M)	=	4.5720
STK INSIDE DIAM (M)	=	0.5080
STK EXIT VELOCITY (M/S)	=	5.8213
STK GAS EXIT TEMP (K)	=	700.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	0.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	0.0000
MIN HORIZ BLDG DIM (M)	=	0.0000
MAX HORIZ BLDG DIM (M)	=	0.0000
STACK EXIT VELOCITY WAS CALCULATED FROM		
VOLUME FLOW RATE	=	2500.0000 (ACFM)

Summary of Screen Model Results

Calculation Procedure	Maximum 1-Hour Concentration ( $\mu\text{g}/\text{m}^3$ )	Distance of Maximum (M)	Terrain Height (M)
Simple Terrain	3.085	67	0

VII. Health Risk Assessment

A health risk assessment was conducted to determine if the proposed crematorium complies with the negligible risk requirement of MCA 75-2-215.

The environmental effects unrelated to human health were not considered in determining compliance with the negligible risk standard but were evaluated as required by the Montana Environmental Policy Act, in determining compliance with all applicable rules or other requirements requiring protection of public health, safety, welfare, and the environment.

Pursuant to ARM 17.8.770(1)(c), pollutants may be excluded from the human health risk assessment if the Department determines that exposure from inhalation is the only appropriate pathway to consider in the human health risk assessment and if the ambient concentrations of the pollutants (calculated using the potential to emit; enforceable limits or controls) are less than the levels specified in Table 1 or Table 2 of ARM 17.8.770.

The proposed Hi-Line Crematory incinerator has a stack height of 15 feet (ft) (4.572 meters) with vertical discharge, a stack exit temperature was assumed to be ~800 °F (700 degrees Kelvin), and a flow rate of 2,500 actual cubic feet per minute (ACFM) with a 20 inch inside stack diameter (0.508 meter). Ambient air modeling was accomplished using SCREEN3 software; an EPA approved ambient air dispersion model. The SCREEN3 modeling results are provided below:

Screen3 Modeling			
Calculation Procedure	Max Concentration (µg/m <sup>3</sup> )	Distance to Max (m)	Terrain Height (m)
Simple Terrain	3.085	67	0
Distance to nearest structure (m)		10	

Although not all pollutants exceeded the levels specified in Table 1 or Table 2 of ARM 17.8.770, the Department conducted a full risk assessment. The Department included those pollutants for which emissions factors are available for crematory operations. Although additional species of pollutants have been identified in documented emission factors for the combustion of natural gas and/or propane, prior analyses indicate those pollutants would pass the human health risk assessment. Therefore, emission factors based on stack test data specific to crematory emissions were used. For those pollutants reviewed, the calculated cancer risks demonstrate there is not more than a negligible health, safety, and welfare risk to the public and to the environment, as defined in ARM 17.8.740(16).

As documented in the Negligible Risk Assessment table below and in accordance with the Department’s negligible risk requirement, as defined in ARM 17.8.740(16), no individual pollutant concentration exceeds the Cancer Risk threshold of 1.00E-06, the sum of all the Cancer Risk concentrations (7.84E-7) does not exceed 1.00E-05. Further, the sum of the Chronic Non-cancer Reference Exposure Level (CNCREL) hazard quotients is less than 1.0 as required to demonstrate compliance with the negligible risk requirement.

The Department considers the risks estimated in the risk assessment to comply with the requirement to demonstrate negligible risk to human health and the environment.

Enter Maximum Annual Modeled Concentration Here - (don't forget to adjust the maximum hourly to the annual impact and check units) --->

0.2468

ug/m<sup>3</sup>

0.08 is the multiplying factor from EPA to convert a 1-hr maximum concentration to an annual averaging period. (Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised, EPA-454/R-92-019, Page 4-16)

HAP Category / Pollutant Name	CAS #	Fraction of all HAPS	Calculated HAP Concentration (ug/m <sup>3</sup> )	ARM 17.8.770 De Minimis Levels			Exceed ARM 17.8.770 Table 1?	Exceed ARM 17.8.770 Table 2 Chronic?	Exceed ARM 17.8.770 Table 2 Acute?	Negligible Risk Assessment (1)								
				Table 1 Cancer Annual (ug/m <sup>3</sup> )	Table 2 Noncancer Chronic Annual (ug/m <sup>3</sup> )	Table 2 Noncancer Acute Annual (ug/m <sup>3</sup> )				Cancer URF (2)	Cancer Risk (3)	CNCREL (4) (ug/m <sup>3</sup> )	CNCREL Quotient (5)					
<u>Heavy Metals</u>																		
Antimony (less than)	7440360	1.85E-04	4.57E-05	N/A	2.00E-03	N/A	No	No	No	N/A	N/A	N/A	N/A					
Arsenic (less than)	7440382	1.84E-04	4.54E-05	2.33E-05	5.00E-03	N/A	Yes	No	No	0.0043	1.95E-07	0.015	3.03E-03					
Beryllium	7440417	1.68E-05	4.15E-06	4.17E-05	N/A	N/A	No	No	No	0.0024	9.96E-09	0.02	2.08E-04					
Cadmium	7440439	1.35E-04	3.33E-05	5.56E-05	N/A	N/A	No	No	No	0.0018	6.00E-08	0.01	3.33E-03					
Chromium	7440473	3.67E-04	9.06E-05	8.33E-06	2.00E-05	N/A	Yes	Yes	No	N/A	N/A	N/A	N/A					
Chromium, hx	18540299	1.66E-04	4.09E-05	N/A	N/A	N/A	No	No	No	0.012	4.91E-07	0.1	4.09E-04					
Cobalt (less than)	7440484	1.07E-05	2.65E-06	N/A	N/A	N/A	No	No	No	N/A	N/A	0.1	2.65E-05					
Lead	7439921	8.13E-04	2.01E-04	N/A	1.50E-02	N/A	No	No	No	N/A	N/A	0.15	1.34E-03					
Mercury	7439976	4.17E-02	1.03E-02	N/A	3.00E-03	3.00E-01	No	Yes	No	N/A	N/A	0.3	3.43E-02					
Nickel	7440020	4.69E-04	1.16E-04	0.00038462	2.40E-03	1.00E-02	No	No	No	N/A	N/A	0.09	1.29E-03					
Selenium	7782492	5.35E-04	1.32E-04	N/A	5.00E-03	2.00E-02	No	No	No	N/A	N/A	20	6.60E-06					
Zinc	7440666	4.33E-03	1.07E-03	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A					
<u>Polycyclic Organic Matter (POM)</u>																		
2-methylnaphthalene	91576	7.58E-07	1.87E-07	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A					
3-methylchloranthrene (less than)	56495	2.84E-08	7.01E-09	N/A	N/A	N/A	No	No	No	0.0063	4.42E-11	N/A	N/A					
7,12 Dibenz(a)anthracene (less than)		5.05E-07	1.25E-07	N/A	N/A	N/A	No	No	No	0.071	8.85E-09	N/A	N/A					
Anthracene (less than)	120127	3.79E-08	9.35E-09	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A					
Benzene	71432	6.63E-05	1.64E-05	1.20E-02	7.10E-01	N/A	No	No	No	0.0000078	1.28E-10	30	5.45E-07					
Dichlorobenzene	25321226	3.79E-05	9.35E-06	0.0090909	8.00E+00	N/A	No	No	No	0.000011	1.03E-10	800	1.17E-08					



Hexane	110543	5.68E-02	1.40E-02	N/A	2.00E+00	N/A	No	No	No			700	2.00E-05
Napthalene	91203	1.93E-05	4.75E-06	N/A	0.14	N/A	No	No	No	0.000034		3	1.58E-06
Phenanthrene	85018	5.37E-07	1.32E-07	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Toluene	108883	1.07E-04	2.65E-05	N/A	4	N/A	No	No	No			5000	5.30E-09
Acenaphthene	83329	1.36E-06	3.36E-07	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Acenaphthylene	208968	1.50E-06	3.70E-07	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Benz(a)anthracene (less than)	56553	5.99E-08	1.48E-08	5.88E-05	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Benzo(a)pyrene (less than)	50328	1.79E-07	4.41E-08	5.88E-05	N/A	N/A	No	No	No	0.0011	4.85E-11	N/A	N/A
Benzo(b)fluoranthene (less than)	205992	9.76E-08	2.41E-08	0.000058824	N/A	N/A	No	No	No	0.00011	2.65E-12	N/A	N/A
Benzo(g,h,i)perylene (less than)	191242	1.79E-07	4.41E-08	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene (less than)	207089	8.72E-08	2.15E-08	0.000058824	N/A	N/A	No	No	No	0.00011	2.37E-12	N/A	N/A
Chrysene (less than)	218019	3.31E-07	8.18E-08	N/A	N/A	N/A	No	No	No	0.000011	9.00E-13	N/A	N/A
Dibenz(a,h)anthracene (less than)	53703	7.79E-08	1.92E-08	0.000058824	N/A	N/A	No	No	No	0.00011	2.12E-12	N/A	N/A
Fluorene	86737	5.12E-06	1.26E-06	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Fluoranthene	206440	2.52E-06	6.21E-07	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene (less than)	193395	9.45E-08	2.33E-08	0.000058824	N/A	N/A	No	No	No	0.00011	2.57E-12	N/A	N/A
Phenanthrene	85018	2.81E-05	6.94E-06	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Pyrene	129000	1.99E-06	4.91E-07	N/A	N/A	N/A	No	No	No	N/A	N/A	N/A	N/A
Dibenzofurans			2.23E-08	2.6316E-09	3.5E-08	N/A	Yes	No	No	0.0099		1.2E-08	
1,2,3,4,6,7,8-Heptachlorodibenzofuran (less than)	6756239 4	2.80E-08	6.92E-09	N/A	N/A	N/A							
1,2,3,4,7,8,9-Heptachlorodibenzofuran (less than)	5567389 7	1.71E-09	4.21E-10	N/A	N/A	N/A							
1,2,3,4,7,8-Hexachlorodibenzofuran	7064826 9	1.17E-08	2.89E-09	N/A	N/A	N/A							
1,2,3,6,7,8-Hexachlorodibenzofuran	5711744 9	1.05E-08	2.58E-09	N/A	N/A	N/A							
1,2,3,7,8,9-Hexachlorodibenzofuran	7291821 9	2.05E-08	5.06E-09	N/A	N/A	N/A							
2,3,4,6,7,8-Hexachlorodibenzofuran	6085134 5	4.22E-09	1.04E-09	N/A	N/A	N/A							
1,2,3,7,8-Pentachlorodibenzofuran (less than)	5711741 6	1.80E-09	4.45E-10	N/A	N/A	N/A							
2,3,4,7,8-Pentachlorodibenzofuran (less than)	5711731 4	5.43E-09	1.34E-09	N/A	N/A	N/A							
2,3,7,8-Tetrachlorodibenzofuran	5120731 9	6.37E-09	1.57E-09	N/A	N/A	N/A							
Listed Non-POM Organic HAPs													

Acetaldehyde	75070	1.60E-03	3.94E-04	4.55E-02	9.00E-02	N/A	No	No	No	N/A	N/A	9	4.38E-05
Formaldehyde	50000	4.17E-04	1.03E-04	0.0076923	0.036	3.7	No	No	No	0.000013	1.34E-09	9.8	1.05E-05
<u>Listed Acids</u>													
Hydrogen chloride (hydrochloric acid)	7647010	8.84E-01	2.18E-01	N/A	2.00E-01	3.00E+01	No	Yes	No	N/A	N/A	20	1.09E-02
Hydrogen fluoride (hydrofluoric acid)	7664393	8.10E-03	2.00E-03	N/A	0.059	5.8	No	No	No	N/A	N/A	14	1.43E-04
<u>Dioxins</u>													
2,3,7,8-tetrachlorodibenzo-p-dioxin	1746016	9.75E-10	2.41E-10	2.6316E-09	3.5E-08	N/A	No	No	No	33	7.94E-09	0.00004	6.01E-06
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	3582246 9	4.65E-08	1.15E-08	N/A	N/A	N/A	No	No	No	0.33	3.79E-09	4E-07	2.87E-02
SUM of Hexachlorodibenzo-p-dioxin		1.43E-08	3.53E-09	N/A	N/A	N/A	No	No	No	1.3	4.58E-09	N/A	N/A
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	3922728 6	3.38E-09	8.33E-10	N/A	N/A	N/A	No	No	No				
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	5765385 7	4.87E-09	1.20E-09	N/A	N/A	N/A	No	No	No				
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1940874 3	6.04E-09	1.49E-09	N/A	N/A	N/A	No	No	No				
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	4032176 4	2.86E-09	7.06E-10	N/A	N/A	N/A	No	No	No	1.3	9.18E-10	N/A	N/A
SUM --->											7.84E-07		0.0838078

VIII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

IX. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Air, Energy & Mining Division  
Air Quality Bureau  
P.O. Box 200901, Helena, Montana 59620  
(406) 444-3490

ENVIRONMENTAL ASSESSMENT (EA)

*Issued To:* Wilderness Funeral Homes for Hi-Line Crematory

*Montana Air Quality Permit number (MAQP):* 3034-03

*EA Draft:* March 26, 2021

*EA Final:* April 29, 2021

*Permit Final:* May 15, 2021

1. *Legal Description of Site:* The Hi-Line Crematory is located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. The legal description is Section 18, Township 30 North, Range 30 East, Phillips County. The facility is situated in downtown Malta in a mixed-use neighborhood.
2. *Description of Project:* Wilderness Funeral Homes is replacing their 1989 Crawford model c-1000 H-S incinerator/crematorium with a 2012 Matthews Power-Pak II Plus incinerator/crematorium.
3. *Objectives of Project:* Upgrade the crematory.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. The Department determined that the proposed emitting unit would not violate any state or national air quality standards. The new crematorium is expected to have lower criteria pollutant emissions than the existing unit. Therefore, the “no-action” alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #3034-03.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.
7. *SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS:* The following comments have been prepared by the Department.

**A.** *Terrestrial and Aquatic Life and Habitats*

Emissions from the proposed project would potentially affect terrestrial and aquatic life and habitats in the proposed project area outside of normal construction operations.

However, as detailed in Sections V and VI of the permit analysis, any emissions and resulting impacts from the project would be minor due to the low concentrations of the pollutants emitted.

**B.** *Water Quality, Quantity and Distribution*

The project would not be expected to affect water quality or distribution. The crematorium would operate within an existing structure and does not discharge or use water during normal operation.

**C.** *Geology and Soil Quality, Stability and Moisture*

The project would not be expected to affect the geology, soil quality, stability, or moisture of the immediate area outside of normal construction operations. The crematorium would operate inside an existing structure.

**D.** *Vegetation Cover, Quantity, and Quality*

Airborne emissions from the project may potentially affect vegetative cover, quantity, and quality in the project area. However, any emissions and resulting impacts from the project would be expected to be minor due to the dispersion characteristics and the low concentration of emitted pollutants.

**E.** *Aesthetics*

The project would not change the aesthetics of the existing area since a crematorium currently exists on the location and being replaced with a new crematorium. The crematorium is inside the building so only the stack would change. The “stack” from the facility would be partially hidden and exposed portion of the stack would have minimal aesthetic changes.

**F.** *Air Quality*

The project would cause a minor affect to air quality due to emissions of pollutants from the crematorium. Section VII of the permit analysis contains a detailed list of pollutants including Hazardous Air Pollutants (HAPs). The Department has conducted air dispersion modeling to determine the ambient air quality impacts from HAPs and determined that the project poses a negligible risk to human health and environment.

Stack parameters and emission rates used in the SCREEN3 model are contained in Section VII of the permit analysis and are on file with the Department. Stack height and stack velocity were taken from data provided in the permit application.

Due to the dispersion characteristics and low levels of pollutants that would be emitted from the proposed project the Department determined that any impacts to air quality would be minor.

**G.** *Unique Endangered, Fragile, or Limited Environmental Resources*

Due to the location of project in the city of Malta, with installation occurring within an existing building, there are no expected endangered, fragile, or limited environmental resources in the project area. As discussed in Section VI of the permit analysis, any emissions and resulting impacts from the project would be minor due to the low concentration of those pollutants emitted. Overall, any impact to the unique endangered, fragile, or limited environmental resource of the proposed project area would be expected to be negligible and no different than under the operation of the current crematorium.

**H.** *Sage Grouse Executive Order*

The Department recognizes the facility location is not within Greater Sage Grouse Habitat Area as defined by Executive Order No. 12-2015

**I.** *Demands on Environmental Resource of Water, Air and Energy*

The proposed project would result in minor demands on environmental resources of water, air, and energy. Project impacts on air resources in the proposed project area would be minor due to dispersion characteristics and the low concentration of those pollutants emitted. Little to no impacts to water resources would be expected due to the small nature of the project. The cremation unit would require natural gas to operate. Because the project is small by industry standards, relatively little energy would be required for operation, resulting in minor impact.

**J.** *Historical and Archaeological Sites*

The project would occur within an existing building and no new excavation is required. Therefore, no historical and/or archaeological sites are present in the proposed area of construction/operation and a recommendation for a cultural resource inventory is unwarranted at this time. However, should cultural materials be inadvertently discovered during this project the SHPO office must be contacted, and the site investigated.

**K.** *Cumulative and Secondary Impacts*

The cumulative and secondary impacts from this project on the environment in the immediate area are expected to be minor. This facility is within an urban area and the air pollution emissions from this facility are negligible. The Department believes that this facility would be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #3034-03.

**8.** *SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS:*

The following comments have been prepared by the Department.

**A.** *Social Structures and Mores*

Wilderness Funeral Homes is proposing to operate a natural gas-fired multiple chambered cremation unit with a maximum design capacity of 175 pounds per hour (lb/hr). The incinerator emissions would be extremely low on an industrial scale and opacity limitations would require 10% or less while operating.

The proposed project would be installed and operated in as a replacement to an existing crematorium and does not represent a change in the social structures or mores of the area.

**B.** *Cultural Uniqueness and Diversity*

The proposed project would not cause any change in the cultural uniqueness and diversity of the area as the incinerator would be installed and operated in an existing structure replacing an existing crematorium.

**C.** *Local and State Tax Base and Tax Revenue*

The impact on local and state tax base and tax revenue would be minor because the project would not require additional employees and its value as business equipment would be minimal.

**D.** *Agricultural or Industrial Production*

The proposed project would not cause any change in the agricultural or industrial production of the area as the proposed project is to provide cremation services for the community and surrounding areas.

**E.** *Human Health*

As described in Section VI of the permit analysis, modeling and analysis of hazardous air pollutants showed negligible risk to human health. Furthermore, the change in the potential to emit of conventional air pollutants would be negligible. Impacts to human health would be minor.

**F.** *Access to and Quality of Recreational and Wilderness Activities*

The proposed project would not affect access to any wilderness activities or quality of recreational activities.

**G.** *Quantity and Distribution of Employment*

The proposed project would have minor impacts on quantity and distribution of employment. No new employees would be hired as a result of this project.

**H.** *Distribution of Population*

The proposed project would have no effect on the distribution of population.

**I.** *Demands for Government Services*

The proposed project would have a minor impact on demands for government services through permitting activities and compliance inspections.

**J.** *Industrial and Commercial Activity*

The proposed project would result in minor commercial activity because the crematorium would require installation. There would be no impacts to industrial activities in the proposed project area.

**K.** *Locally Adopted Environmental Plans and Goals*

The Department is not aware of any locally adopted environmental plans and goals that this project would impact. The State standards would be protective of the proposed project area.

**L.** *Cumulative and Secondary Impacts*

Overall, cumulative and secondary impacts from this project would expect minor impacts to the economic and social environment in the immediate area due to the relatively small size of the operation. The Department believes that this facility would be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #3034-03.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of a replacement crematorium. MAQP #3034-03 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program – Montana Sage Grouse Conservation Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Quality Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: J. Ackerlund  
Date: March 26, 2021